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| EXAMINER | |
|---|---|
| LAMBRECHT, CHRISTOPHER M | |
| **ART UNIT** | **PAPER NUMBER** |
| 2611 | 10 |

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/540,306 | FORECAST ET AL. | |
| | Examiner | Art Unit | |
| | Christopher M. Lambrecht | 2611 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) *25-38* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,18-21 and 24* is/are rejected.

7)☒ Claim(s) *8-17,22 and 23* is/are objected to.

8)☒ Claim(s) *1-24, 25-38* are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 January 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4,6,7,8,9*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-24, drawn to a system for preparation of metadata for splicing of transport streams, classified in class 725, subclass 146.

II. Claims 25-38, drawn to a method of seamless, real-time splicing of transport streams, classified in class 725, subclass 32.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as program or commercial insertion at a local cable headend. See MPEP § 806.05(d).

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Richard C. Auchterlonie on 5/26/2004 a provisional election was made with traverse to prosecute the invention of group I, claims 1-24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 25-38 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Objections***

6. Claim 19 is objected to because of the following informalities: In claim 19, line 1, "20" should be changed to "18". Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter (Porter et al., US005650539A, supplied by applicant) in view of Weaver (Weaver et al., US006112226A) and Toebes (Toebes, VIII et al., US00595690A, supplied by applicant).

With regard to claim 1, Porter discloses a method of preparing metadata (tag file 106, fig. 1b) for splicing of a transport stream (col. 11, ln. 59 – col. 12, ln. 4, col. 12, ll. 26-27, & col. 12, ll. 32-35, where transitioning playback between noncontiguous portions of a transport stream constitutes splicing) including video access units (where the system employs the MPEG standard, col. 7, ll. 3-5, and video access units corresponds to a "group of pictures" comprising the series of frames including one I-frame and all P-frames and B-frames dependent thereupon, defined in the MPEG standard, col. 1, ll. 56-66) encoding video presentation units representing video frames (where the system employs the MPEG standard, col. 7, ll. 3-5, and where dependence relationships among frames contained in a group of pictures permits encoding of the video frames therein, col. 2, ll. 6-14), the video access units of the transport stream encoding the video presentation units using a data compression technique (col. 1, ll. 56-59, where the system

employs the MPEG standard, col. 7, ll. 3-5) and containing a variable amount of compressed video data (col. 1, ll. 37-40, where the system employs the MPEG standard, col. 7, ll. 3-5), the method including: a) a server (composed of storage 140, tag file generator 112, stream server 110, video pump 130, and downstream manager 131, fig. 1b) ingesting the transport stream (receipt of transport stream, col. 7, ll. 30-37); b) the server storing the transport stream in a file in data storage (storage 140, col. 6, ll. 2-4). Porter fails to disclose concurrently with storing the transport stream in the file in data storage, the server computing metadata of the transport stream, and storing the metadata for splicing in the file.

In an analogous art, Weaver discloses concurrently (i.e., in parallel) with storing the transport stream in the file in data storage (MDS 112, fig. 1), the server (video server 106, fig. 1) computing metadata (tag information) of the transport stream, and storing the metadata (col. 6, ll. 40-50), for the purpose of providing immediate (disregarding tag data buffering delay) access to the stored video data and its associated tag data (col. 6, ll. 51-63). Weaver fails to disclose storing the metadata (tag data) in the file containing the transport stream.

Additionally, in an analogous art, Toebes discloses storing the metadata (stream index) in the file containing the transport stream (col. 10, ll. 20-21), for the purpose of providing flexibility in the manner in which the metadata is transmitted (e.g., as a composite stream, user data, etc., col. 10, ll. 21-26).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Porter to include concurrently with storing the transport stream in the file in data storage, the server computing metadata of the transport stream, and storing the metadata, as taught by Weaver, for the purpose of providing immediate access to the stored video data and its associated tag data in a system for preparing metadata for splicing of a transport stream.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Porter and Weaver to include storing the metadata in the file containing the transport stream, as taught by Toebes, for the purpose of providing flexibility in the manner in which the metadata is transmitted in a system for preparing metadata for splicing of a transport stream.

As for claim 2, Porter, Weaver, and Toebes together disclose the claimed subject matter. In particular, Porter discloses the transport steam is MPEG-2 compliant (col. 7, ll. 3-5 and col. 8, ll. 2-5).

As for claim 3, Porter, Weaver, and Toebes together disclose the ingestion of the transport stream (Porter, col. 7, ll. 30-37), the computation of the metadata (tag file generation, Porter, col. 7, ll. 25-30) and the storage of the transport stream and the metadata (Weaver, col. 6, ll. 40-50) in the file (Toebes, col. 10, ll. 20-21) occurs at least as fast as real time (Porter, col. 7, ll. 30-37).

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter, Weaver, and Toebes as applied to claim 1 above, and further in view of Engel (Engel et al., US006519636B2).

With regard to claim 4, Porter Weaver, and Toebes together disclose ingestion of data in the server and computation of metadata (see rejection of claim 1). However, Porter, Weaver, and Toebes fail to disclose a metered file transfer protocol.

In an analogous art, Engel discloses the use of a metered file transfer protocol (where network server actively limits transmission rate between a data source and data destination, col.

18, ll. 2-8), for the purpose of guaranteeing a good quality of the transmission between the source and the destination (col. 18, ll. 6-10).

Consequently, it would have been obvious to one of ordinary skill I the art at the time the invention was made to modify the system of Porter, Weaver, and Toebes to include the use of a metered file transfer protocol, as taught by Engel, for the purpose of guaranteeing a good quality of the transmission between the source and the destination in a system for preparing metadata for splicing of a transport stream.

10. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter, Weaver, and Toebes as applied to claim 1 above, and further in view of Lyons (Lyons et al., US006061399A, supplied by applicant) and Parry (Parry et al., US006748481B1).

With regard to claim 5, Porter, Weaver, and Toebes together disclose accessing buffers (Weaver, tag buffer 108 & write buffer 154, fig. 1) to transfer data of the transport stream and corresponding metadata to the file (Toebes, col. 10, ll. 20-21) in data storage (Weaver, MDS 112, fig. 1). Porter, Weaver, and Toebes fail to disclose storing the ingested transport stream in a carousel of buffers, accessing the carousel of buffers to compute the metadata and to store the metadata in the carousel of buffers.

In an analogous art, Lyons discloses storing the ingested transport stream in a buffer (FIFO 220, col. 5, ll. 34-39), accessing the buffer to compute the metadata (accessing two frames stored in the FIFO buffer and calculating a temporal reference, col. 6, ll. 24-26) and to store the metadata in the buffer (inserting a GOP header comprising the calculated temporal reference value, while the GOP of the TS is stored in the FIFO buffer, col. 6, ll. 26-30), for the purpose of carrying out a frame alignment process enabling smooth transitioning between MPEG streams (col. 4, ll. 60-66).

Additionally, in an analogous art, Parry discloses the use of a carousel of buffers (circular buffer 124, fig. 6), for the purpose of simplifying system design and operation, which enhances system stability (col. 16, ll. 20-23).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Porter, Weaver, and Toebes to include storing the ingested transport stream in a carousel of buffers, accessing the carousel of buffers to compute the metadata and to store the metadata in the carousel of buffers, as taught by Lyons, for the purpose of carrying out a frame alignment process enabling smooth transitioning between MPEG streams in a system for preparing metadata for splicing of a transport stream.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Porter, Weaver, Toebes, and Lyons to include a carousel of buffers, as taught by Parry, for the purpose of simplifying system design and operation, and enhancing system stability in a system for preparing metadata for splicing of a transport stream.

As for claim 6, Porter, Weaver, Toebes, Lyons, and Parry together disclose the server includes a stream server computer (Weaver, video server 106, fig. 1) and a cached disk storage subsystem (MDS 112, fig. 1, col. 10, ll. 54-58), the carousel of buffers are allocated in random access memory (Parry, col. 7, ln. 66 – col. 8, ln. 1), and the stream server computer is programmed with a file system that maps the file to disk storage in the cached disk storage subsystem (where the video server is capable of storing data in the MDS 112, it is inherently programmed with a file system that enables this function) and that writes the data of the transport stream and corresponding metadata to the file in disk storage of the cached disk storage subsystem (col. 6, ll. 40-50).

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter, Weaver, Toebes, Lyons and Parry as applied to claim 5 above, and further in view of Suzuki (Suzuki et al., 4,181,938).

With regard to claim 7, Lyons further discloses a network interface board (transport stream decoder 110, fig. 1, for receiving a remote feed, col. 3, ll. 13-17)) that ingests the transport stream and loads the transport stream into the carousel of buffers (decoded stream(s) is/are sent to video frame synchronizer 200, which comprises FIFO buffer 220, see fig. 2) (col. 3, ll. 28-31), for the purpose of decoding the incoming transport stream for further processing (col. 3, ll. 13-31). Porter, Weaver, Toebes, Lyons, and Parry fail to explicitly disclose a direct memory access protocol.

In an analogous art, Suzuki discloses the use of a direct memory access protocol for the purpose of decreasing processor load, accelerating transfer of data, and carrying out efficient processing of data (col. 1, ll. 23-30).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Porter, Weaver, Toebes, Lyons, and Parry to include a network interface board that ingests the transport stream and loads the transport stream into the carousel of buffers, as further taught by Lyons, using a direct memory access protocol, as taught by Suzuki, for the purpose of decoding the incoming transport stream for further processing while decreasing processor load, accelerating transfer of data, and carrying out efficient processing of data in a system of preparing metadata for splicing of a transport stream.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter in view of Toebes.

With regard to claim 18, Porter discloses a data storage device (storage 140, fig. 1) containing a file of data of a transport stream (MPEG file 104, fig. 1) including video access units (where the system employs the MPEG standard, col. 7, ll. 3-5, and video access units corresponds to a "group of pictures" comprising the series of frames including one I-frame and all P-frames and B-frames dependent thereupon, defined in the MPEG standard, col. 1, ll. 56-66) encoding video presentation units representing video frames (where dependence relationships among frames contained in a group of pictures permits encoding of the video frames therein, col. 2, ll. 6-14), the video access units of the transport stream encoding the video presentation units using a data compression technique (col. 1, ll. 56-59, where the system employs the MPEG standard, col. 7, ll. 3-5) and containing a variable amount of compressed video data (col. 1, ll. 37-40, where the system employs the MPEG standard, col. 7, ll. 3-5) and a file containing an index to groups of pictures (GOPs) in the transport stream (information permitting non-sequential access to a particular I-frame in the transport stream, col. 11, ll. 59-67), and the index to the groups of pictures includes pointers (start position for the target frame) to the transport stream file data of respective ones of the GOPs (col. 12, ll. 1-6), and the file further contains attributes (states of various MPEG layers) of the GOPs (col. 9, ll. 38-41) computed from the data of the transport stream (during tag file generation, col. 7, ll. 25-28), and the attributes of the GOPs are also indexed by the index to the groups of pictures (where the states of the various MPEG layers are determined for each frame, col. 9, ll. 35-41, and each frame is indexed by the tag file, see Table 2, "start position", which indicates the starting position of data for a given frame "F" in the MPEG file). Porter fails to disclose the indices to the groups of pictures are contained within the transport stream data file.

In an analogous art, Toebes discloses storing the metadata (stream index) in the file containing the transport stream (col. 10, ll. 20-21), for the purpose of providing flexibility in the manner in which the metadata is transmitted (e.g., composite stream, user data, etc., col. 10, ll. 21-26).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Porter to include storing the metadata in the file containing the transport stream, as taught by Toebes, for the purpose of providing flexibility in the manner in which the metadata is transmitted in a system for preparing metadata for splicing of a transport stream.

13. Claims 19-21, and 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter and Toebes as applied to claim 18 above, and further in view of Moeller (Moeller et al., US005828370A).

With regard to claim 19, Porter and Toebes together disclose the system of claim 18. However, Porter and Toebes fail to disclose the index to the groups of pictures is in the form of a table of entries for the respective ones of the GOPs.

In an analogous art, Moeller discloses an index to groups of pictures in the form of a table of entries for respective ones of the GOPs (index table comprising offsets to each GOP, col. 10, ll. 33-42), for the purpose of enabling trick play functionality (col. 10, ll. 33-34).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Porter and Toebes to include the index to the groups of pictures in the form of a table of entries for respective ones of the GOPs, as taught by Moeller, for the purpose of enabling trick play functionality in a system for preparing metadata for splicing of a transport stream.

As for claim 20, Porter, Toebes, and Moeller together disclose each entry includes at least one frame number (frame number for each entry, Porter, fig. 2B) of a frame in the respective GOP (Moeller, col. 10, ll. 33-37), a pointer to where transport stream data of the respective GOP is stored in the file (offset, Moeller, col. 10, ll. 33-37), and values for other attributes (play time) of the respective GOP (Moeller, col. 10, ll. 44-50).

As for claim 21, Porter, Toebes, and Moeller together disclose the claimed subject matter. In particular, Toebes discloses the index to the groups of pictures is stored in a header of the file after metadata about the transport stream as a whole (i.e., the index is stored in a private/user data field of the transport stream, col. 10, ll. 20-26).

As for claim 24, Porter, Toebes and Moeller together disclose the claimed subject matter. In particular, Porter discloses the transport steam is MPEG-2 compliant (col. 7, ll. 3-5 and col. 8, ll. 2-5).

***Allowable Subject Matter***

14. Claims 8-17, 22, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

15. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Lambrecht whose telephone number is (703) 305-8710. The examiner can normally be reached on 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the primary examiner, Christopher Grant can be reached on (703) 305-4755. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher M. Lambrecht
Examiner
Art Unit 2611

CML

CHRIS GRANT
PRIMARY EXAMINER